What is claimed is

1. A nonlinear broadcast system that broadcasts material
data by executing a plurality of transfer processes of the
material data for broadcast in parallel for at least a certain
duration, the transfer processes for broadcast utilizing a
common hardware resource, the nonlinear broadcast system
comprising:

material storage means storing the material data;

duration information storage means storing duration
information showing durations, in each of which a different
one of the transfer processes for broadcast is scheduled to
be executed;

first allocation means for allocating a required amount
of the hardware resource to each transfer process for broadcast,
for the corresponding duration shown by the duration
information;

available amount calculation means for calculating an
available amount of the hardware resource remaining after
the first allocation means has allocated the required amount
to each transfer process for broadcast;

second allocation means for allocating, to one or more
background transfer processes that are processes other than
the transfer processes for broadcast, as much amount of the
hardware resource as possible, so as not to exceed the
calculated available amount; and

25   process execution means for executing (a) each transfer

26   process for broadcast utilizing the amount of hardware

27   resource allocated by the first allocation means, and (b)

28   each background transfer process utilizing the amount of

29   hardware resource allocated by the second allocation means.

1   2. The nonlinear broadcast system of Claim 1,

2   wherein the available amount calculation means

3 calculates the available amount of the hardware resource,

4 every time when one of a start time and an end time of each

5 duration shown by the duration information is reached.

1   3. The nonlinear broadcast system of Claim 2,

2   wherein the material storage means is a readable and

3 writable recording medium,

4   the hardware resource is a band for an access to the

5 recording medium,

6   the first allocation means allocates a required

7 bandwidth of the band to each transfer process for broadcast,

8   the available amount calculation means calculates an

9 available bandwidth by subtracting the bandwidth allocated

10 to each transfer process for broadcast by the first allocation

11 means from a total bandwidth of the band for the access to

12 the recording medium,

13   the second allocation means allocates, to each

14 background transfer process, as much bandwidth of the band

15 as possible, so as not to exceed the calculated available

16 bandwidth, and

17 the process execution means executes (a) each transfer

18 process for broadcast utilizing the bandwidth allocated by

19 the first allocation means, and (b) each background transfer

20 process utilizing the bandwidth allocated by the second

21 allocation means.

1 4. The nonlinear broadcast system of Claim 3,

2 wherein each background transfer process is a process

3 for writing the material data to the recording medium, and

4 each transfer process for broadcast is a process for

5 reading the material data from the recording medium.

1 5. The nonlinear broadcast system of Claim 4,

2 wherein the material data is video data,

3 the recording medium is a hard disc, and

4 the nonlinear broadcast system comprises:

5 a transmitting device for converting the video data so

6 as to be in a broadcast format, and broadcasting the converted

7 video data;

8 a plurality of nonlinear editing devices each being

9 provided so as to correspond to one hard disc and including

10 a coder-decoder, the first allocation means, the second

11   allocation means, the available amount calculation means,

12   and the process execution means, the process execution means

13   executing each transfer process for broadcast for reading

14   the video data from the hard disc corresponding to the nonlinear

15   editing device and outputting the read video data via the

16   coder-decoder; and

17   a switcher for selecting video data, out of video data

18   outputted by each of the nonlinear editing devices, and sending

19   the selected video data to the transmitting device.

1   6. The nonlinear broadcast system of Claim 5,

2   wherein each nonlinear editing device further includes

3   effect addition means for adding an effect to the video

4   data when the video data is outputted via the coder-decoder.

1   7. The nonlinear broadcast system of Claim 4, further

2   comprising

3   transfer complete time display means for obtaining an

4   amount of data to be transferred by each background transfer

5   process, calculating a time at which the background transfer

6   process is to be completed, based on the bandwidth allocated

7   by the second allocation means, and displaying the calculated

8   time.

1   8. The nonlinear broadcast system of Claim 3,

2   wherein each transfer process for broadcast is a process

3   for reading the material data from the recording medium,

4   organizing the read material data so as to be in a format

5   suitable for a streaming-type delivery, and performing the

6   streaming-type delivery, and

7   each background transfer process is a process for reading

8   the material data from the recording medium, organizing the

9   read material data so as to be in a format suitable for a

10 download-type delivery, and performing the down-load type

11 delivery.

1   9. The nonlinear broadcast system of Claim 1,

2   wherein the available amount calculation means

3   calculates the available amount, every time when one of (a)

4   a time that is a predetermined duration before a start time

5   of each duration shown by the duration information and (b)

6   an end time of each duration shown by the duration information

7   is reached.

1   10. A hardware resource allocation method for performing

2   hardware resource allocation for processes, in a nonlinear

3   broadcast system in which material data are broadcasted by

4   executing a plurality of transfer processes of the material

5   data for broadcast in parallel for at least a certain duration,

6 the transfer processes for broadcast utilizing a common

7 hardware resource,

8   the nonlinear broadcast system including material

9 storage means storing the material data and duration

10 information storage means storing duration information

11 showing durations, in each of which a different one of the

12 transfer processes for broadcast is scheduled to be executed,

13   the hardware resource allocation method comprising:

14   a first allocation step for allocating a required amount

15 of the hardware resource to each transfer process for broadcast

16 for   the   corresponding   duration   shown   by   the   duration

17 information;

18   an available amount calculation step for calculating

19 an available amount of the hardware resource remaining after

20 the required amount has been allocated to each transfer process

21 for broadcast in the first allocation step; and

22   a second allocation step for allocating, to one or more

23 background transfer processes that are processes other than

24 the transfer processes for broadcast, as much amount of the

25 hardware resource as possible, so as not to exceed the

26 calculated available amount.

1   11. The hardware resource allocation method of Claim

2 10,

3   wherein in the available amount calculation step, the

4   available amount of the hardware resource is calculated every

5   time when one of a start time and an end time of each duration

6   shown by the duration information is reached.

1   12. The hardware resource allocation method of Claim

2   11,

3   wherein the material storage means included in the

4   nonlinear broadcast system is a readable and writable

5   recording medium,

6   the hardware resource is a band for an access to the

7   recording medium,

8   in the first allocation step, a required bandwidth of

9   the band is allocated to each transfer process for broadcast,

10   in the available amount calculation step, an available

11 bandwidth is calculated by subtracting the bandwidth

12 allocated to each transfer process for broadcast in the first

13 allocation step from a total bandwidth of the band for the

14 access to the recording medium, and

15   in the second allocation step, as much bandwidth of the

16 band as possible is allocated to each background transfer

17 process, so as not to exceed the calculated available bandwidth.

1   13. The hardware resource allocation method of Claim

2   12,

3   wherein each background transfer process is a process

4   for writing the material data to the recording medium, and

5   each transfer process for broadcast is a process for

6   reading the material data from the recording medium.

1   14. The hardware resource allocation method of Claim

2   12,

3   wherein each transfer process for broadcast is a process

4   for reading the material data from the recording medium,

5   organizing the read material data so as to be in a format

6   suitable for a streaming-type delivery, and performing the

7   streaming-type delivery, and

8   each background transfer process is a process for reading

9   the material data from the recording medium, organizing the

10   read material data so as to be in a format suitable for a

11   download-type delivery, and performing the down-load type

12   delivery.

1   15. The hardware resource allocation method of Claim

2   10,

3   wherein in the available amount calculation step, the

4   available amount is calculated every time when one of (a)

5   a time that is a predetermined duration before a start time

6   of each duration shown by the duration information and (b)

7   an end time of each duration shown by the duration information

8   is reached.

1   16. A program for making a nonlinear broadcast system

2   that has a program execution function execute a hardware

3   resource allocation control procedure, the nonlinear

4   broadcast system broadcasting material data by executing a

5   plurality of transfer processes of the material data for

6   broadcast in parallel for at least a certain duration, the

7   transfer processes for broadcast utilizing a common hardware

8   resource,

9   the nonlinear broadcast system including material

10   storage means storing the material data and duration

11   information storage means storing duration information

12   showing durations, in each of which a different one of the

13   transfer processes for broadcast is scheduled to be executed,

14   the hardware resource allocation control procedure

15   comprising:

16   a first allocation step for allocating a required amount

17   of the hardware resource to each transfer process for broadcast

18   for the corresponding duration shown by the duration

19   information;

20   an available amount calculation step for calculating

21   an available amount of the hardware resource remaining after

22   the required amount has been allocated to each transfer process

23   for broadcast in the first allocation step; and

24   a second allocation step for allocating, to one or more

25   background transfer processes that are processes other than

26 the transfer processes for broadcast, as much amount of the

27 hardware resource as possible, so as not to exceed the

28 calculated available amount.

1   17. The program of Claim 16,

2   wherein in the available amount calculation step, the

3   available amount of the hardware resource is calculated every

4   time when one of a start time and an end time of each duration

5   shown by the duration information is reached.

1   18. The program of Claim 16,

2   wherein in the available amount calculation step, the

3   available amount is calculated every time when one of (a)

4   a time that is a predetermined duration before a start time

5   of each duration shown by the duration information and (b)

6   an end time of each duration shown by the duration information

7   is reached.